pattern of polarities, and so that the actuator flux path also includes a magnet of the sequence of magnets having a polarity opposite the polarity of the magnet of the first field subassembly.

32. (Original) A method of configuring a linear actuator having a field assembly and a coil assembly for operation upon a load having load characteristics which vary over a stroke, comprising the steps of

fashioning a magnet structure of the field assembly along a direction of motion of the linear actuator to distribute flux densities in an air gap in correspondence to the variations in the load characteristics over the stroke; and

configuring a coil of the coil assembly to be responsive to the distributed flux densities.

33. (Currently Amended) The method of claim 32, wherein the fashioning step includes the steps of

dimensioning first and second magnets, wherein the first magnet creates a first average flux density of a selected polarity to which a side of the coil is exposed, and the second magnet creates a second average flux density of [[a]] the selected polarity to which the side of the coil is exposed and is positioned adjacent the first magnet to form a first group;

dimensioning third and fourth magnets to have a polarity opposite to the selected polarity, and average flux densities in the air gap to which another side of the coil is exposed corresponding to the first and second average flux densities in the air gap, respectively, wherein the fourth magnet is positioned adjacent the third magnet to form a second group, and the second group is positioned along the direction of motion in a sequence with the first group.

34. (Original) The method of claim 32, wherein the load characteristics correspond to a spring having a spring constant K, and further wherein the fashioning step includes the step of distributing flux densities in the magnetic structure to provide a variation of flux density in the air gap along the direction of motion in correspondence with the spring having the spring constant K.

35. (Original) The method of claim 32, wherein the fashioning step includes the step of selecting the physical characteristics of the magnetic structure to provide the distribution of flux density in the air gap.

36. (Original) The method of claim 35, wherein the selecting step includes configuring the width dimension of the magnet structure along the direction of motion.

37. (Original) The method of claim 35, wherein the selecting step includes the step of providing a plurality of spaced apart magnets, each providing a different average flux density in the air gap to which a coil side is exposed.

38. (Original) The method of claim 34, wherein the distributing step includes the steps of

selecting first and second magnets, wherein the first magnet has a first width and a selected polarity, and the second magnet has a second width less than the first width and the selected polarity and is positioned adjacent the first magnet to form a first group;

selecting third and fourth magnets having a polarity opposite to the selected polarity, and widths corresponding to the first and second widths, respectively, wherein the fourth magnet is positioned adjacent the third magnet to form a second group, and the second group is positioned along the direction of motion in a sequence with the first group.

39. (Currently Amended) The method of claim 32, wherein the fashioning step includes the step of accounting for friction characteristics of the actuator or load when creating a required flux density distribution in the air gap.

40. (Original) The method of claim 32, wherein the fashioning step includes the steps of

positioning the magnetic structure on a first field blank having a generally planar portion; and

forming additional sections extending along the planar portion in the direction of motion, so that when the first field blank is positioned opposite a second field blank to form the air gap, corresponding additional sections form a flux path perpendicular to the direction of motion for the magnet structure.